

INSTALLATION SPECIFICATIONS

THE CDS PRECAST COMPONENTS WILL BE DELIVERED TO THE PROJECT SITE VIA A FLATBED TRANSPORT. THE CONTRACTOR SHALL PROVIDE EQUIPMENT AT THE SITE THAT HAS ADEQUATE LIFTING CAPACITY TO UNLOAD THE PRECAST COMPONENTS. THE INSTALLATION SEQUENCE REQUIRES THE SOLIDS STORAGE SUMP TO BE INSTALLED FIRST, FOLLOWED BY THE CDS SECTION, ADDITIONAL RISER SECTIONS (IF NECESSARY), TOP SLAB WITH THE APPROPRIATE TRAFFIC COVERS TO BE PLACED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS, AND (IF NECESSARY) GRADE RINGS AND/OR GROUT TO MATCH GRADE.

THE PRECAST COMPONENTS ARE DELIVERED WITH LIFTING POINTS CAST INTO THE VARIOUS PORTS WHERE CAVITIES WERE CREATED FOR LIFTING. SAID CAVITIES SHALL BE MORTAR PACKED AND FINISHED TO CONFORM TO THE SURFACE THAT WOULD HAVE OTHERWISE EXISTED HAD NOT THE LIFTING POINT REBAR BARS OR FABRICATED CABLE LOOPS HAD BEEN USED TO PROVIDE FOR THE SURFACE FINISH. FINISHING, THOSE PROTRUDING REBAR OR FABRICATED CABLE LOOPS SHALL BE CUT FLUSH WITH THE NORMAL FINISHED SURFACE. ALL WORK THROUGHOUT THE INSTALLATION SHALL BE DONE TO A PROFESSIONAL STANDARD NORMALLY EXPECTED FOR THE CLASS OF WORK BEING PERFORMED.

EXCAVATION, Dewatering and Shoring:
THE CONTRACTOR SHALL EXCAVATE, DEWATER AND SHORE IN ACCORDANCE WITH THE APPLICABLE PROJECT SPECIFICATIONS FOR EXCAVATION AND SHORING. EXCAVATION AND SHORING TO BE DONE BY A SAFE WORKMAN. THE CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE DURING EXCAVATION. IMPORTANT: AFTER EXCAVATION, AGGREGATE BASE COMPACTION AND PLACEMENT OF SUMP, PRIOR TO STACKING MANHOLE SECTIONS, CONFIRM DEPTH BELOW OUTLET PIPE INVERT TO OUTSIDE BOTTOM OF SUMP. (SEE SITE SPECIFIC DRAWINGS FOR DIMENSIONS).

1. SOLIDS STORAGE SUMP INSTALLATION:
SUBGRADE SHALL BE ESTABLISHED AS SHOWN ON THE DRAWINGS. THE SUBGRADE MATERIAL SHALL BE COMPACTED TO WITHSTAND A DESIGN LOADING OF 2,000 POUNDS PER SQUARE FOOT (PSF). IT IS RECOMMENDED THAT THE HOLE BE OVER EXCAVATED A MINIMUM OF 6" AND BACKFILLED WITH INDIANUM CL. 60 AND CUMULATIVE 100% 10 MESH SUBGRADE. THE BACKFILL MAY BE FINE, MEDIUM OR SAND. SHALL BE PLACED AND COMPACTED ACHIEVING A MINIMUM COMPACTION OF 90% OR AS SPECIFIED BY THE ENGINEER WHEN TESTED BY ASTM DESIGNATION A1557. BACKFILL MATERIAL MAY BE A MINIMUM COMPACTION EFFORT MATERIAL SUCH AS 3/4" PEA GRAVEL OR CLEAN FILL SAND. THE CONTRACTOR MAY USE NATIVE MATERIAL IF THE MATERIAL PROVIDES AN ALLOWABLE BEARING PRESSURE OF 2,000 POUNDS PER SQUARE FOOT AND IF APPROVED BY THE ENGINEER. SAID NATIVE MATERIAL SHALL BE COMPACTED TO A MINIMUM RELATIVE DENSITY OF 90% WHEN TESTED BY ASTM DESIGNATION A1557 OR AS SPECIFIED BY THE ENGINEER. THE SUMP SHALL BE PLACED ON THE COMPACTED BASE. EL ELEVATION CONFIRMED, PLUMBED AND ALIGNED TO INSURE THAT THE BALANCE OF THE UNIT WILL BE PROPERLY ALIGNED AND SITUATED AS ASSEMBLY OF THE REST OF THE PRECAST PIECES PROCEED.

2. CDS SECTION INSTALLATION:
THE CDS SECTION IS DELIVERED TO THE PROJECT SITE WITH ALL INTERNAL COMPONENTS PRE-INSTALLED BY CONTECH. IF THE SIZE OF THE CDS UNIT REQUIRES THAT INTERNAL COMPONENT INSTALLATION BE PERFORMED AT THE PROJECT SITE, CONTECH WILL MAKE APPROPRIATE ARRANGEMENTS WITH THE CONTRACTOR PRIOR TO THE INSTALLATION OF THE MANHOLE. PRIOR TO PLACEMENT OF THE CDS SECTION, THE CONTRACTOR SHALL PLACE A LAYER OF 3/4" INCH X 1 1/2" INCH MINIMUM BUTYL MASTIC MANHOLE SEALANT DELIVERED WITH THE CDS UNIT ON BOTH UPPER AND LOWER SURFACES OF THE SUMP SECTION ON TONGUE AND GROOVE JOINT. THE CDS SECTION RISER SHALL BE SET WITH THE PROPER ORIENTATION TO THE STORM DRAIN TO ENSURE CORRECT ALIGNMENT OF THE INLET AND OUTLET PIPE OPENINGS. IF THE INLET AND OUTLET OPENINGS ARE REVERSED, THE STORMWATER TREATMENT UNIT WILL NOT FUNCTION. IF IT IS UNCLEAR WHICH OPENING IS INLET AND WHICH OPENING IS OUTLET, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE BEFORE PROCEEDING.

IMPORTANT: APPLY LOAD TO MANHOLE SECTIONS TO COMPRESS BUTYL MASTIC SEALANT IF NECESSARY. UNIT MUST BE WATER TIGHT, HOLDING WATER TO FLOWLINE MINIMUM. SUGGESTED: DO ALSO SHOWN ALL JOINTS BELOW SURFACE.

3. STORM DRAIN PIPE CONNECTION:
SEAL STORM DRAIN INLET AND OUTLET PIPES TO CDS UNIT USING FLEXIBLE GASKETS OR GROUT-FILL MANHOLE OPENINGS IN ACCORDANCE WITH PROJECT SPECIFICATIONS.

4. ADDITIONAL RISER INSTALLATION:
PRIOR TO PLACEMENT OF ADDITIONAL RISER SECTIONS, THE CONTRACTOR SHALL PLACE A LAYER OF BUTYL MASTIC SEALANT TO THE TONGUE AND GROOVE JOINT OF THE CDS SECTION AND SUBSEQUENT RISER SECTIONS IN THE MANNER DESCRIBED PREVIOUSLY. PLACE RISERS IN THE ORDER SHOWN ON THE SITE SPECIFIC DRAWINGS.

AT THIS POINT, THE CONTRACTOR MAY ELECT TO BACKFILL WITH THE FOLLOWING SPECIFICATION, OR THE CONTRACTOR MAY ELECT TO CONTINUE WITH THE INSTALLATION OF THE TOP SLAB, AS DEEMED APPROPRIATE. THE BACKFILL MATERIAL AROUND THE CDS SECTION AND THE ADDITIONAL RISER SECTIONS SHALL BE PLACED AND COMPACTED ACHIEVING A MINIMUM COMPACTION OF 90% WHEN TESTED BY ASTM DESIGNATION A1557. BACKFILL MATERIAL MAY BE A MINIMUM COMPACTION EFFORT MATERIAL SUCH AS 3/4" PEA GRAVEL, 3/4" CLEAN FILL SAND. THE CONTRACTOR MAY USE NATIVE MATERIAL IF APPROVED BY THE ENGINEER IF SAID MATERIAL PROVIDES AN ALLOWABLE BEARING PRESSURE OF 2,000 POUNDS PER SQUARE FOOT. SAID NATIVE MATERIAL SHALL BE COMPACTED TO A MINIMUM RELATIVE DENSITY OF 90% WHEN TESTED BY ASTM DESIGNATION A1557.

5. TOP SLAB INSTALLATION:
UPON COMPLETION OF THE RISER SECTIONS, THE CONCRETE MANHOLE TOP SLAB IS INSTALLED. BUTYL MASTIC IS PLACED ON THE TONGUE AND GROOVE JOINT AS DESCRIBED PREVIOUSLY. THE TOP SLAB IS ORIENTED AS INDICATED ON THE SITE SPECIFIC DRAWINGS. USE GROUT AND MANHOLE RINGS AS NECESSARY TO MATCH FINAL GRADE AND INSTALL THE PROVIDED MANHOLE FRAME AND COVERS AS SHOWN ON THE DRAWINGS. IF THE TOP SLAB ORIENTATION DOES NOT MATCH THE SITE SPECIFIC DRAWINGS, IT WILL BE IMPOSSIBLE TO INSPECT AND CLEAN THE STORMWATER TREATMENT UNIT.

6. BACKFILL:
UPON COMPLETION OF THE CDS UNIT INSTALLATION, THE EXCAVATION SHALL BE BACKFILLED WITH AN AGGREGATE BASE MATERIAL, PEA GRAVEL, OR CONTROLLED DENSITY GROUT BACKFILL. THE AGGREGATE BASE MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 90% COMPACTION OR AS SPECIFIED BY THE ENGINEER WHEN TESTED BY ASTM DESIGNATION A1557. FINISH THE EXCAVATION TO THE DESIRED TRAFFIC LOADINGS. IF THE TOP SLAB ORIENTATION DOES NOT MATCH THE SITE SPECIFIC DRAWINGS, IT WILL BE IMPOSSIBLE TO INSPECT AND CLEAN THE STORMWATER TREATMENT UNIT.

7. TOP SLAB:
REMOVE ALL MATERIAL AND DEBRIS FROM THE INLET, SEPARATION CYLINDER, AND SUMP UPON COMPLETION OF INSTALLATION. IMPORTANT: PRIOR TO PROJECT COMPLETION, CONTRACTOR SHALL FILL CDS UNIT WITH WATER TO FLOWLINE INVERT.

CONTECH
STORMWATER SOLUTIONS
www.contechinc.com

**CDS PRECAST CONCRETE
WATER QUALITY SYSTEM
CONTRACTOR INSTALLATION SPECIFICATIONS**

CDS MAINTENANCE NOTES

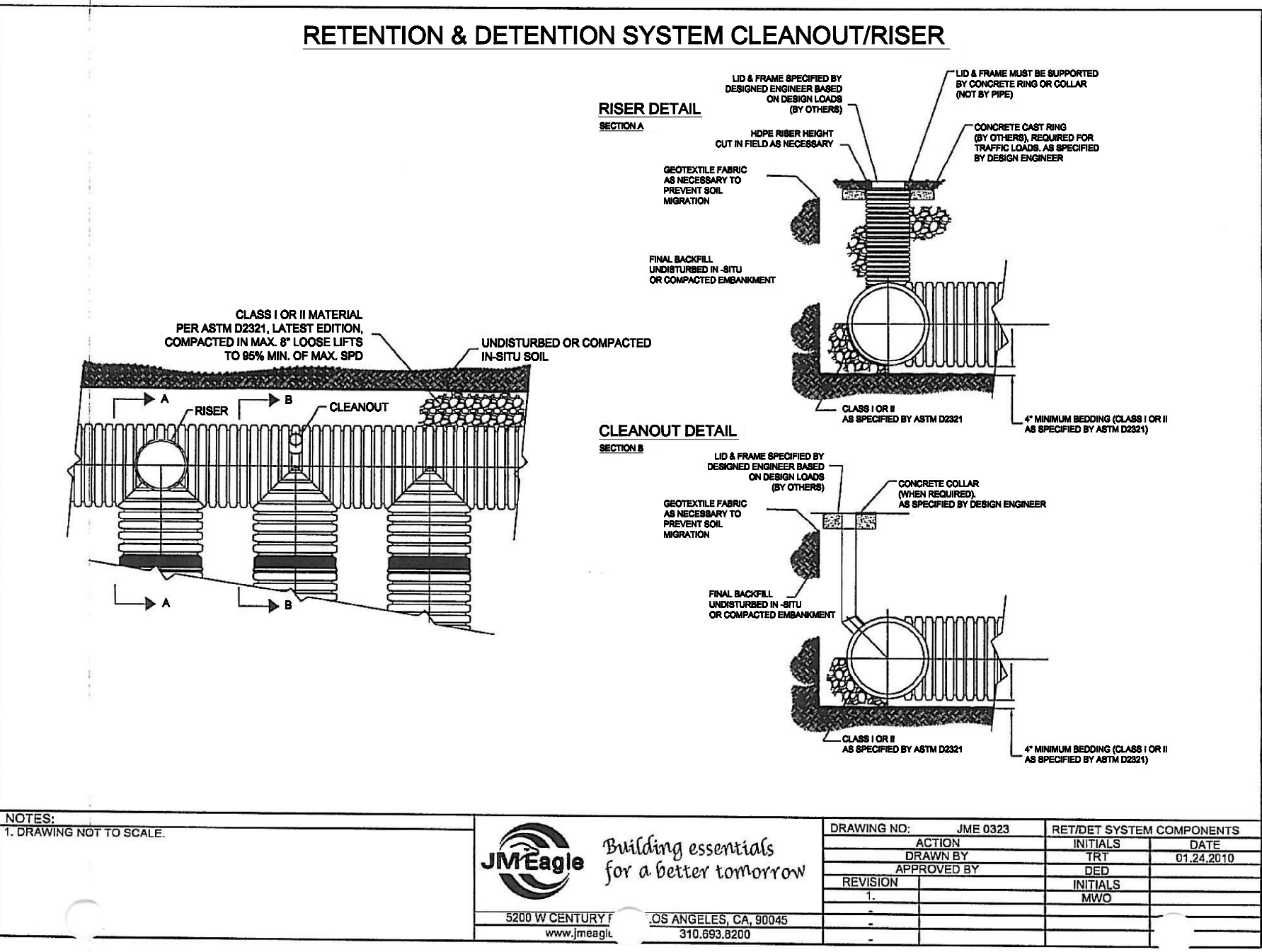
THE CDS SYSTEM SHOULD BE INSPECTED AT REGULAR INTERVALS AND MAINTAINED WHEN NECESSARY TO ENSURE OPTIMUM PERFORMANCE. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE HEAVILY ON SITE ACTIVITIES THAN THE SIZE OF THE UNIT. E.G., UNSTABLE SOILS OR HEAVY WINTER SANDING WILL CAUSE THE GRT CHAMBER TO FILL MORE QUICKLY BUT REGULAR SWEEPING OF PAVED SURFACES WILL SLOW ACCUMULATION.


CDS INSPECTION NOTES

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE AND IS EASILY PERFORMED. POLLUTANT DEPOSITION AND TRANSPORT MAY VARY FROM YEAR TO YEAR AND REGULAR INSPECTIONS WILL HELP INSURE THAT THE SYSTEM IS CLEANED OUT AT THE APPROPRIATE TIME. AT A MINIMUM, INSPECTIONS SHOULD BE PERFORMED TWICE PER YEAR (I.E. SPRING AND FALL) HOWEVER MORE FREQUENT INSPECTIONS MAY BE NECESSARY IN CLIMATES WHERE WINTER SANDING OPERATIONS MAY LEAD TO RAPID ACCUMULATIONS, OR IN EQUIPMENT WASHDOWN AREAS. ADDITIONALLY, INSTALLATIONS SHOULD BE INSPECTED MORE FREQUENTLY WHERE EXCESSIVE AMOUNTS OF TRASH ARE EXPECTED. THE VISUAL INSPECTION SHOULD ASCERTAIN THAT THE SYSTEM COMPONENTS ARE IN WORKING ORDER AND THAT THERE ARE NO BLOCKAGES OR OBSTRUCTIONS TO INLET AND/OR SEPARATION SCREEN. THE INSPECTION SHOULD ALSO IDENTIFY EVIDENCE OF VECTOR INFESTATION AND ACCUMULATIONS OF HYDROCARBONS, TRASH, AND SEDIMENT IN THE SYSTEM. MEASURING POLLUTANT ACCUMULATION CAN BE DONE WITH A CALIBRATED DIPSTICK, TAPE MEASURE OR OTHER MEASURING INSTRUMENT. IF SORBENT MATERIAL IS USED FOR ENHANCED REMOVAL OF HYDROCARBONS THEN THE LEVEL OF DISCOLORATION OF THE SORBENT MATERIAL SHOULD ALSO BE IDENTIFIED DURING INSPECTION. IT IS USEFUL AND OTHER REQUIRED AS PART OF A PERMIT TO KEEP A RECORD OF EACH INSPECTION. A SIMPLE FORM FOR DOING SO IS PROVIDED.

ACCESS TO THE CDS UNIT IS TYPICALLY ACHIEVED THROUGH TWO MANHOLE ACCESS COVERS. ONE OPENING ALLOWS FOR INSPECTION AND CLEANOUT OF THE SEPARATION CHAMBER (SCREEN/CYLINDER) AND ISOLATED SUMP. THE OTHER ALLOWS FOR INSPECTION AND CLEANOUT OF SEDIMENT CAPTURED AND RETAINED BEHIND THE SCREEN. FOR UNITS POSSESSING A SIZABLE DEPTH BELOW GRADE (DEPTH TO PIPE), A SINGLE MANHOLE ACCESS POINT WOULD ALLOW BOTH SUMP CLEANOUT AND ACCESS BEHIND THE SCREEN.

THE CDS SYSTEM SHOULD BE CLEANED WHEN THE LEVEL OF SEDIMENT HAS REACHED 75% OF CAPACITY IN THE ISOLATED SUMP AND/OR WHEN AN APPRECIABLE LEVEL OF HYDROCARBONS AND TRASH HAS ACCUMULATED. IF SORBENT MATERIAL IS USED, IT SHOULD BE REPLACED WHEN SIGNIFICANT DISCOLORATION HAS OCCURRED. PERFORMANCE WILL NOT BE IMPACTED UNTIL 100% OF THE SUMP CAPACITY IS EXCEEDED HOWEVER IT IS RECOMMENDED THAT THE SYSTEM BE CLEANED PRIOR TO THAT FOR EASIER REMOVAL OF SEDIMENT. THE LEVEL OF SEDIMENT IS EASILY DETERMINED BY MEASURING FROM FINISHED GRADE DOWN TO THE TOP OF THE SEDIMENT PILE, TO AVOID UNDERESTIMATING THE LEVEL OF SEDIMENT IN THE CHAMBER, THE MEASURING DEVICE MUST BE LOWERED TO THE TOP OF THE SEDIMENT PILE CAREFULLY. FINER, SILTY PARTICLES AT THE TOP OF THE PILE TYPICALLY OFFER LESS RESISTANCE TO THE END OF THE ROD THAN LARGER PARTICLES TOWARD THE BOTTOM OF THE PILE. ONCE THIS MEASUREMENT IS RECORDED, IT SHOULD BE COMPARED TO THE AS-BUILT DRAWING FOR THE UNIT TO DETERMINE IF THE HEIGHT OF THE SEDIMENT PILE OFF THE BOTTOM OF THE SUMP FL OOR EXCEEDS 75% OF THE TOTAL HEIGHT OF ISOLATED SUMP.



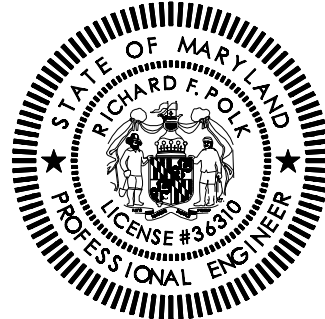
NOTES: 1. DRAWING NOT TO SCALE.	 Building essentials for a better tomorrow	DRAWING NO. JME 0321	RET/DET SYSTEM COMPONENTS	
			ACTION	INITIALS DATE
			DESIGNED BY	RED 07-23-2010
			APPROVED BY	RED
			REVISION	INITIALS
			1.	MWO
3200 W CENTURY www.jmeagle.com	LOS ANGELES, CA 90040 310.693.6200			

HDPE PIPE INSPECTION NOTES

INSPECT EACH PIPE SHIPMENT WITH CARE UPON ARRIVAL. EACH PIPE SHIPMENT IS CAREFULLY LOADED AT THE FACTORY USING METHODS ACCEPTABLE TO THE CARRIER. THE CARRIER IS THEN RESPONSIBLE FOR DELIVERING THE PIPE AS RECEIVED FROM JIM EAGLE. ALL SHIPMENTS INCLUDE AN ADEQUATE AMOUNT OF LUBRICANT FOR THE PIPE IF NECESSARY. IT IS THE RESPONSIBILITY OF THE RECEIVER TO MAKE CERTAIN THERE HAS BEEN NO LOSS OR DAMAGE UPON ARRIVAL.

CHECK THE MATERIALS, PIPE, GASKETS AND FITTINGS RECEIVED AGAINST THE BILL OF LADING (TALLY SHEET THAT ACCOMPANIES EVERY SHIPMENT) IN ACCORDANCE WITH THE GENERAL GUIDELINES BELOW. REPORT ANY ERROR OR DAMAGE TO THE TRANSPORTATION COMPANY REPRESENTATIVE, AND HAVE PROPER NOTATION MADE ON THE DELIVERY RECEIPT AND SIGNED BY THE DRIVER. PRESENT THE CLAIM IN ACCORDANCE WITH THE CARRIER'S INSTRUCTIONS. DO NOT DISPOSE OF ANY DAMAGED MATERIAL. THE CARRIER WILL ADVISE YOU OF THE PROCEDURE TO FOLLOW IN ORDER TO PROCURE SAMPLES AND REPORT THE INCIDENT.

1. MAKE OVERALL EXAMINATION OF THE LOAD. IF THE LOAD IS INTACT, ORDINARY INSPECTION WHILE UNLOADING SHOULD BE ENOUGH TO MAKE SURE PIPE HAS ARRIVED IN GOOD CONDITION.
2. IF LOAD HAS SHIFTED OR SHOWS ROUGH TREATMENT, THEN EACH PIECE MUST BE CAREFULLY INSPECTED FOR DAMAGE.
3. CHECK THE TOTAL QUANTITIES OF EACH ITEM AGAINST THE TALLY SHEET (PIPE, FITTINGS, LUBRICANT, ETC.).
4. ANY DAMAGED OR MISSING ITEMS MUST BE NOTED ON THE DELIVERY RECEIPT AND RETURNED TO THE TRANSPORTATION COMPANY.
5. NOTIFY CARRIER IMMEDIATELY AND MAKE CLAIM IN ACCORDANCE WITH THEIR INSTRUCTIONS.
6. DO NOT DISPOSE OF ANY DAMAGED MATERIAL. CARRIER WILL NOTIFY YOU OF THE PROCEDURE TO FOLLOW.
7. SHORTAGES AND DAMAGED MATERIALS ARE NOT AUTOMATICALLY RESHIPPED. IF REPLACEMENT MATERIAL IS NEEDED, REORDER THROUGH YOUR DISTRIBUTOR AND MAKE THEM AWARE OF THE CLAIM.



PROFESSIONAL CERTIFICATION:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. **3610**, EXPIRATION DATE: **11/17/2012**

CHARLES COUNTY GOVERNMENT DEPARTMENT OF PLANNING AND GROWTH MANAGEMENT DEVELOPMENT SERVICES DEPARTMENT

GRADING	CONSTRUCTION	AS-BUILT	REMARKS OR CONDITIONS
ROADS	CONSTRUCTION	AS-BUILT	
STORM DRAINAGE	CONSTRUCTION	AS-BUILT	
STORMWATER MANAGEMENT	CONSTRUCTION	AS-BUILT	
WATER	CONSTRUCTION	AS-BUILT	
SEWER	CONSTRUCTION	AS-BUILT	
OTHER	CONSTRUCTION	AS-BUILT	

SIGNED:	THIS PERMIT EXPIRES ON:
DATE:	DATE:

REV NO.	CONSTRUCTION REVISION	DATE

VISTA DESIGN, INC. Landscape Architects, Land Planning Consultants, Engineers & Surveyors 11634 Worcester Hwy, Shovell, MD 21862 ph 410-352-3874 fax 410-352-3875 email vista@vistadesigninc.com	PROJECT DATA DRAWN BY: BZ CHECK BY: RP CHARLES COUNTY BRYANS ROAD, MARYLAND F.B. NO.: 00-00-00 T.M. NO.: 0-00-00-00 DATE: 05/20/10 SCALE: 1" = 10'	09-047 PROJ. NO. CD 012210.dwg File Name: 16 SHEET NO.
---	--	--

NOTE:
This drawing, specifications, and work produced by Vista Design, Inc. (VDI) for this project are instruments of service for this project only, and remains the copyrighted property of VDI. Reuse or reproduction of any of the instruments of service of VDI by the Client or assigns without the written permission of VDI will be at the Client's risk and be a violation of the copyright laws of the United States of America and the respective state within which the work was completed.

NOTE:
This Drawing does not include necessary components for construction safety. All construction must be done in compliance with the occupational safety and health act of 1970 and all rules and regulations thereto appurtenant.